**UNITED STATES**
**NUCLEAR REGULATORY COMMISSION**
**REGION I**
**2100 RENAISSANCE BOULEVARD, SUITE 100**
**KING OF PRUSSIA, PENNSYLVANIA 19406-2713**

April 30, 2020

Mr. Bryan C. Hanson
Senior Vice President, Exelon Generation Company, LLC
President and Chief Nuclear Officer, Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – PROBLEM IDENTIFICATION AND RESOLUTION ANNUAL SAMPLE INSPECTION REPORT 05000333/2020011

Dear Mr. Hanson:

On April 23, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at James A. FitzPatrick Nuclear Power Plant and discussed the results of this inspection with Mr. Pat Navin, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. One Severity Level IV violation without an associated finding is documented in this report. We are treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at James A. FitzPatrick Nuclear Power Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; and the NRC Resident Inspector at James A. FitzPatrick Nuclear Power Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

X /RA/

Signed by: Glenn T. Dentel

Glenn T. Dentel, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 05000333
License No. DPR-59

Enclosure:
As stated

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SUBJECT: JAMES A. FITZPATRICK NUCLEAR POWER PLANT – PROBLEM IDENTIFICATION AND RESOLUTION ANNUAL SAMPLE INSPECTION REPORT 05000333/2020011 DATED APRIL 30, 2020

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**U.S. NUCLEAR REGULATORY COMMISSION**
**Inspection Report**

| | |
|---|---|
| Docket Number: | 05000333 |
| License Number: | DPR-59 |
| Report Number: | 05000333/2020011 |
| Enterprise Identifier: | I-2020-011-0026 |
| Licensee: | Exelon Generation Company, LLC |
| Facility: | James A. FitzPatrick Nuclear Power Plant |
| Location: | Oswego, NY |
| Inspection Dates: | November 4, 2019 to April 23, 2020 |
| Inspectors: | A. Patel, Senior Reactor Inspector<br>F. Arner, Senior Reactor Analyst<br>C. Bickett, Senior Reactor Inspector<br>C. Cahill, Branch Chief |
| Approved By: | Glenn T. Dentel, Chief<br>Engineering Branch 2<br>Division of Reactor Safety |

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a Problem Identification and Resolution Annual Sample Inspection at James A. FitzPatrick Nuclear Power Plant, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

## List of Findings and Violations

| Unprotected DC Control Circuits Running through Multiple Fire Areas | | | |
|---|---|---|---|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | Green<br>NCV 05000333/2020011-01<br>Open/Closed | [P.2] - Evaluation | 71152 |
| The inspectors identified a Green finding and associated non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix R, III.G.1, in that Exelon did not ensure that equipment required for post-fire safe shutdown was protected from the effects of a postulated fire. Specifically, Exelon did not provide overcurrent protection for cables associated with certain non-safety related direct current (DC) motor control circuits to prevent the cables from overheating due to fire-induced faults and affecting required safe shutdown equipment during a postulated fire. | | | |

| Untimely Licensee Event Report for Reportable Conditions Associated with Unprotected DC Control Circuits Running through Multiple Fire Areas | | | |
|---|---|---|---|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Not Applicable | NCV 05000333/2020011-02<br>Open/Closed | Not Applicable | 71153 |
| The inspectors identified a Severity Level IV non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.73(a)(1) for a failure to submit a licensee event report (LER) within 60 days after the discovery of an event requiring a report. Specifically, on June 24, 2019, during a review of industry operating experience, Exelon identified postulated fire-induced circuit failures involving unfused non safety-related direct current (DC) motor control circuits for JAF which was an unanalyzed condition that significantly degraded plant safety. Exelon submitted an LER on August 23, 2019, reporting the condition but incorrectly retracted that LER on September 30, 2019. Exelon did not submit an LER for this event until April 14, 2020. | | | |

## Additional Tracking Items

| Type | Issue Number | Title | Report Section | Status |
|---|---|---|---|---|
| LER | 05000333/2020-002-00 | LER 2020-002-00 for James A. Fitzpatrick Nuclear Power Plant, Unanalyzed Condition Due to Unprotected Control Circuits Running Through Multiple Fire Areas | 71153 | Closed |

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

**OTHER ACTIVITIES – BASELINE**

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

(1) Issue Report 4259118, Postulated Hot Short Fire Event that Could Adversely Impact Safe Shutdown Equipment

71153 - Followup of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event reports (LERs):

(1) LER 05000333/2019-002-00, Unanalyzed Condition Due to Unprotected Control Circuits Running Through Multiple Fire Areas (ADAMS accession number: ML19235A187). This LER submittal was retracted by Exelon in a letter dated September 30, 2019 (ADAMS accession number: ML19273B502). Subsequently, Exelon submitted LER 05000333/2020-002-00, Unanalyzed Condition Due to Unprotected Control Circuits Running Through Multiple Fire Areas (ADAMS accession number: ML20105B225) on April 14, 2020. The inspectors reviewed both LERs and retraction letter. The circumstances surrounding these LERs are documented in the Inspection Results section of this report. This LER is Closed.

**INSPECTION RESULTS**

| Unprotected DC Control Circuits Running through Multiple Fire Areas | | | |
|---|---|---|---|
| Cornerstone | Significance | Cross-Cutting Aspect | Report Section |
| Mitigating Systems | Green<br>NCV 05000333/2020011-01<br>Open/Closed | [P.2] - Evaluation | 71152 |
| The inspectors identified a Green finding and associated NCV of 10 CFR Part 50, Appendix R, III.G.1, in that Exelon did not ensure that equipment required for post-fire safe | | | |

shutdown was protected from the effects of a postulated fire. Specifically, Exelon did not provide overcurrent protection for cables associated with certain non-safety related DC motor control circuits to prevent the cables from overheating due to fire-induced faults and affecting required safe shutdown equipment during a postulated fire.

Description: On June 24, 2019, during a review of industry operating experience, Exelon identified postulated fire-induced circuit failures involving unfused non-safety related DC motor control circuits for JAF. The postulated fire-induced circuit failures could cause a secondary fire that could adversely affect fire safe shutdown equipment. Exelon's safe shutdown analysis is based on a single fire. Exelon issued a 10 CFR 50.72 notification for the unanalyzed condition, EN 54130. Exelon entered this issue into their corrective action program as issue report number IR 4259118 and implemented compensatory measures in the affected fire areas pending final resolution of the issue.

Exelon identified that the non safety-related DC control circuits for the turbine generator emergency bearing lube oil pump (94P-2), emergency seal oil pump (94P-13), and reactor feed pump turbine emergency oil pumps (31P-7A and 31P-7B) were not provided with overcurrent protection, such as fuses. Cables for these control circuits are routed in safety-related trays with safety-related cables through fire zones in the battery charger rooms, battery room corridor, cable spreading room, relay room, and control room. The concern is that under fire safe shutdown conditions, a fire in one area can cause short circuits potentially resulting in secondary fires or cable failures in other fire areas where the cables are routed. Additionally, since these unfused control cables share a common enclosure with other safe shutdown cables, a potential concern is a condition where the hot short condition (excessive current) causes overheating of the cables that could damage adjacent safe shutdown cables.

Also, 10 CFR Part 50, Appendix R, III G.1, states, in part, that fire protection features shall be provided for structures, systems, and components important to safe shutdown and that these features shall be capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station is free of fire damage. Exelon did not provide a fire protection feature, such as a fuse, for certain non-safety related DC motor control circuits. A fire-induced short in these circuits in one area could cause a fire to occur in a separate area where those circuits are routed, damaging adjacent cables or equipment necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station.

On August 23, 2019, Exelon submitted LER 05000333/2019-002-00 to report this event in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degraded plant safety. Exelon determined the cause of the condition was a manufacturer's design error that involved the failure to include protective fuses in DC motor control circuits during plant construction. Exelon initiated corrective actions to further evaluate the condition and to add fuses to the unfused circuits (engineering changes 630221, 630218, 630220, and 630219).

Exelon completed an engineering evaluation of the issue and determined that the hot short current would cause the cable temperature to increase enough to cause the circuit to open at the melting temperature of the copper conductor. This would limit the temperature of any adjacent cables, therefore not affecting their function. As a result, on September 30, 2019, Exelon subsequently retracted the licensee event report and event report. Based on this evaluation, Exelon removed the compensatory measures. The corrective actions to add fuses remained in place.

During the week of November 4, 2019, NRC inspectors reviewed the engineering evaluation and identified concerns with the evaluation. Specifically, the inspectors questioned Exelon's basis for the adjacent conductor temperature during a hot short condition, in that the calculation used was only relevant to the faulted cable and not an adjacent cable. As a result, the adjacent cable could reach temperatures that could affect its functionality and cause mis-operation and/or prevent it from operating. Also, the inspectors questioned Exelon's basis that IEEE 383 cables will not propagate a fire, in that certain NRC testing data (i.e., NUREG/CR-6738, NUREG/CR 6850, and NUREG CR-7010) show that cables do smoke heavily and could serve as a pilot ignition source. As a result, secondary fires could be possible due to short condition on these unfused circuits. Due to the NRC inspectors' concerns with the engineering evaluation and the lack of justifiable basis for the conclusions, Exelon reinstituted compensatory measures and entered the issue into their corrective action program as IR 4295495. The NRC inspectors also noted that Exelon had a prior opportunity to identify the issue. Specifically, Exelon wrote a learning organization report (LO-JAFLO-2014-00001) in 2014 to initiate a review of industry operating experience regarding the specific circuits of concern. Exelon closed this learning organization report to their extent of condition review of an unfused ammeter issue identified in condition report CR-JAF-2013-05546. The extent of condition review for the unfused ammeter did not have the information available at the time for the four specific circuits and therefore did not identify these circuit vulnerabilities. As a result, Exelon did not properly conduct an evaluation of the industry operating experience for the four specific circuits.

Exelon conducted further testing and determined their original engineering evaluation could not be supported and that the unfused non safety related cables during certain postulated fires could cause a hot short condition affecting safe shutdown safety related cables. Exelon entered this issue into their corrective action program as IR 4319657. On February 20, 2020, Exelon issued a 10 CFR 50.72 notification (EN 54533) for an unanalyzed condition, regarding the unfused DC motor control circuits. Exelon completed the engineering changes to add fuses to the non-safety related control cables in March 2020. On April 14, 2020, Exelon submitted LER 05000333/2020-002-00 to report this event in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degraded plant safety. This LER and the retraction LER are discussed and closed in the IP 71153 section of this report.

Corrective Actions: Exelon initiated corrective actions to add fuses to the unfused circuits (engineering change 630221, 630218, 630220, and 630219). These corrective actions were completed in March 2020.

Corrective Action References: IR 4259118, 4295495, and 4319657

Performance Assessment:

Performance Deficiency: Exelon's failure to protect safe shutdown cables from the effect of postulated fires in accordance with 10 CFR Part 50, Appendix R, III G.1 was a performance deficiency. Specifically, Exelon did not provide overcurrent protection for cables associated with certain non-safety related DC motor control circuits to prevent the cables from overheating due to fire-induced faults and affecting required safe shutdown equipment during a postulated fire.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure

the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the reliability of the safe shutdown cables was not ensured for fires in the turbine building, battery charger rooms, battery room corridor, cable spreading room, relay room, and control room.

Significance: The inspectors assessed the significance of the finding using Appendix F, "Fire Protection and Post - Fire Safe Shutdown SDP." Appendix F was determined to be applicable because the finding was associated with the ability to reach and maintain safe shutdown conditions in the event of a fire. The inspectors screened the issue in accordance with Figure F.1, "Phase 1 Flow Chart." A low degradation rating could not be assigned in accordance with step 1.3.1. Therefore, the inspectors determined that in accordance with step 1.4.7-C, the finding adversely affected the ability to reach and maintain hot shutdown using the credited safe shutdown success path.

In accordance with step 1.5 of Appendix F, the Region I senior reactor analyst (SRA) noted that Exelon had developed a fire probabilistic risk assessment (PRA) model, which was utilized to provide a best estimate assessment of the impact of the performance deficiency (PD). The finding was associated with a potential failure mechanism caused by overheating of a faulted non-fused circuit (inadequately protected) cable that causes damage to that cable and to other cables routed in common enclosures (cable trays, conduits, panels, etc.). This could create the potential for a fire in one area to damage cables located in a different fire area, which could impact the equipment credited for fire safe shutdown and invalidate credited safe shutdown methods. Exelon's evaluation identified the specific cables of concern relative to the lack of appropriate fusing, the routing of the cables, the fire safe shutdown cables routed with them, the associated safe shutdown equipment and the impacted fire areas.

In accordance with step 1.5-A and 1.5-B of Appendix F, the SRA determined that Exelon had developed an existing fire PRA model capable of determining a best estimate risk impact for the issue. Exelon used this model to determine an estimated CDF risk increase relative to the impact on the safe shutdown strategies. The conditional increase in CDF was calculated to be 3.54E-7/yr or of very low safety significance (Green). The SRA referenced IMC 0609 Appendix F, Attachment 1, and determined that Exelon's basis for the risk review was acceptable and therefore concurred with the risk determination of very low safety significance.

The SRA reviewed Exelon's evaluation of the degraded condition documented within JF-SDP-001, Revision 0, "Results for Significance Determination Process (SDP) Evaluation for Direct Current Unfused Circuits." The SRA noted a fundamental conservatism within the analysis that any potential hot short or damage to one of the applicable circuits would result in damage to any cable routed in a common raceway. This in effect assumes all cables are adjacent to the unfused faulted circuit, when in fact there may be 50 to 80 cables or more in a raceway with unknown distances between safe shutdown cables and the faulted cable. The SRA considered the assumption that all cables are adjacent to the unfused circuit was appropriate to encapsulate other uncertainties relative to the effects of potential fire damage. The SRA noted that the SDP evaluation appropriately targeted the risk increase in fire areas where the condition may possibly adversely impact a safe shutdown strategy. Fire areas 03 and 01E were the two areas of specific notable impact. These were associated with the Train A, Battery Charger room 1 and the Turbine Building. The SRA noted the review appropriately used a maximum exposure time of one year, which is consistent with the Risk Assessment of Operational Events Handbook (RASP) PRA guidance. The evaluation also

considered the impact on the increase in Large Early Release Frequency (LERF) due to the condition. The SRA determined there was some conservatism with this evaluation as the PRA fire model had not included recent plant modifications for the Hardened Containment Vent System (HCVS) and Severe Accident Water (SAWA) mitigation strategies.

The SRA and inspectors independently validated a few of the key assumptions with the dominant core damage sequences within the evaluation, such as fire ignition frequencies (FIFs) for the dominant fire area, fire severity factors and non-suppression probabilities (NSPs). Additionally, the SRA reviewed NUREG-7150, Volume 2 and NUREG/CR 6850 guidance, and determined that the significance determination process (SDP) evaluation had used best estimate values for intra-cable, inter-cable and ground fault equivalent potential circuit failures.

The dominant core damage sequences were associated with turbine generator or turbine building (TB) catastrophic fires. The top CDF sequence from this fire is a case where hot shorts develop in the non-fused circuits due to the catastrophic fire in the TB. This results in a station blackout condition without reactor core isolation cooling (RCIC) or high pressure coolant injection (HPCI) available due to the assumption of their associated cables faulted, as they are contained within the same cable trays. The second most dominant core damage sequence consisted of a postulated catastrophic fire resulting in a loss-of-offsite-power (LOOP) with an emergency diesel generator (EDG) available, however remote depressurization actions using safety relief valves (SRVs), are not successful. The top core damage sequences include hot shorts on cables in which the unfused cable condition may result in damage to cables for both safety divisions. The SRA noted that a key operator action for many of the sequences was remote depressurization using SRVs from the guidance within EP-11, “Alternate Depressurization Using SRVs from 02ADS-71,” Revision 1. The SRA validated the emergency operating procedures (EOPs) would result in direction to implement this procedure. The procedure did not contain many steps and was determined to be a simple task or action. Therefore, the SRA concurred with the best estimate human error probability (HEP) calculated for the action. This included a review of the expected annunciators for low voltage associated with longer term control of the SRVs and actions to hook up a backup battery charger. As noted, the SRA also reviewed Exelon’s detailed analysis of the impact to LERF and determined that the results were bounded by the determination of a very low safety significant issue through the CDF determination.

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Exelon’s engineering evaluation conducted in 2019 was not thorough and did not have an adequate basis to support the conclusion that the unfused circuits were not susceptible to damaging other safe shutdown equipment circuits during a postulated fire. Also, Exelon wrote a learning organization report in 2014 to initiate a review of industry operating experience regarding the specific circuits of concern but did not thoroughly evaluate the operating experience and therefore did not identify the vulnerabilities of the unfused circuits during a postulated fire.

Enforcement:

Violation:

Title 10 CFR Part 50, Appendix R, III G.1, states, in part, that fire protection features shall be provided for structures, systems, and components important to safe shutdown and that these features shall be capable of limiting fire damage so that one train of systems necessary to

achieve and maintain hot shutdown conditions from either the control room or emergency control station is free of fire damage.

Contrary to the above, since original plant construction in the early 1970s, Exelon did not provide fire protection features for structures, systems, and components important to safe shutdown that were capable of limiting fire damage so that one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station is free of fire damage. Specifically, Exelon did not provide a fire protection feature, such as a fuse, for certain non-safety related DC motor control circuits. A fire-induced short in these circuits in one area could result in damaging adjacent cables or equipment in a separate area that are necessary to achieve and maintain hot shutdown conditions, from either the control room or emergency control station.

Exelon entered the issue into their corrective action program as IR 4259118, 4295495, and 4319657, and added overcurrent protective devices to the circuits (fuses).

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Untimely Licensee Event Report for Reportable Conditions Associated with Unprotected DC Control Circuits Running through Multiple Fire Areas

| Cornerstone | Severity | Cross-Cutting Aspect | Report Section |
|---|---|---|---|
| Not Applicable | Severity Level IV<br>NCV 05000333/2020011-02<br>Open/Closed | Not Applicable | 71153 |

The inspectors identified a Severity IV non-cited violation of 10 CFR 50.73(a)(1) for a failure to submit an LER within 60 days after the discovery of an event requiring a report. Specifically, on June 24, 2019, during a review of industry operating experience, Exelon identified postulated fire-induced circuit failures involving unfused non safety-related direct current (DC) motor control circuits for JAF which was an unanalyzed condition that significantly degraded plant safety. Exelon submitted an LER on August 23, 2019, reporting the condition but incorrectly retracted that LER on September 30, 2019. Exelon did not submit an LER for this event until April 14, 2020.

Description: On June 24, 2019, during a review of industry operating experience, Exelon identified postulated fire-induced circuit failures involving unfused non-safety related direct current (DC) motor control circuits for JAF. The postulated fire-induced circuit failures could cause a secondary fire that could adversely affect fire safe shutdown equipment. Exelon issued an 8-hour 50.72 notification for the unanalyzed condition, EN 54130. Exelon entered this issue into their corrective action program as issue report number IR 4259118 and implemented compensatory measures in the affected fire areas pending final resolution of the issue.

On August 23, 2019, Exelon submitted LER 05000333/2019-002-00 to report this event in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degraded plant safety. Exelon determined the cause of the condition was a manufacturer's design error that involved the failure to include protective fuses in DC motor control circuits during plant construction. Exelon initiated corrective actions to further evaluate the condition and to add fuses to the unfused circuits (engineering changes 630221, 630218, 630220, and 630219).

Exelon completed an engineering evaluation of the issue and determined that the hot short current would cause the cable temperature to increase above the melting temperature of the conductor (copper) and therefore opening the circuit alleviating the concern of a hot short. This would limit the temperature of any adjacent cables, therefore not affecting their function to operate during a postulated fire. As a result, on September 30, 2019, Exelon retracted the LER and event report. Exelon also removed the compensatory measures after the retraction. The corrective actions to add fuses remained in place.

During the week of November 4, 2019, NRC inspectors reviewed the engineering evaluation and identified concerns with the evaluation. Specifically, the inspectors questioned Exelon's basis for the adjacent conductor temperature during a hot short condition, in that the calculation used was only relevant to the faulted cable and not an adjacent cable temperature. As a result, the adjacent cable could reach temperatures that could affect its functionality and cause mis-operation and/or prevent it from operating. Also, the inspectors questioned Exelon's basis that IEEE 383 cables will not propagate a fire, in that that certain NRC testing data (i.e., NUREG/CR-6738, NUREG/CR 6850 and NUREG CR-7010) show that cables do smoke heavily and could serve as a pilot ignition source. As a result, secondary fires could be possible due to short condition on these unfused circuits. Due to the NRC inspectors' concerns with the engineering evaluation and the lack of justifiable basis for the conclusions, Exelon reinstituted compensatory measures and entered the issue into their corrective action program as IR 4295495.

Exelon conducted further testing and determined their original engineering evaluation could not be supported and that the unfused non safety-related cables during certain postulated fires could cause a hot short condition affecting safe shutdown safety related cables. Exelon entered this issue into their corrective action program as IR 4319657. On February 20, 2020, Exelon issued an 8-hour 50.72 notification (EN 54533) for an unanalyzed condition, regarding the unfused DC motor control circuits. Exelon completed the engineering changes to add fuses to the non-safety related control cables in March 2020. On April 14, 2020, Exelon submitted LER 05000333/2020-002-00 to report this event in accordance with 10 CFR 50.73(a)(2)(ii)(B) as an unanalyzed condition that significantly degraded plant safety.

Corrective Actions: Exelon submitted the required LER on April 14, 2020.

Corrective Action References: IR 4259118, 4295495, and 4319657

Performance Assessment: None

Enforcement: The ROP's significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC's ability to regulate using traditional enforcement to adequately deter non-compliance.

Severity: The inspectors determined that the violation is appropriately assessed at Severity Level IV NCV, in accordance with the NRC Enforcement Policy. Specifically, the inspectors considered that the violation is similar to the example SL IV violation in Section 6.9.d.9 of the Enforcement Policy, for a failure to make a report required by 10 CFR 50.72 or 10 CFR 50.73.

Violation: 10 CFR 50.73(a)(1) requires, in part, that a licensee submit an LER for any event of the type described in this paragraph within 60 days after the discovery of the event.

10 CFR 50.73(a)(2)(ii)(B) requires, in part, that the licensee report any unanalyzed condition that significantly degraded plant safety.

Contrary to the above, as of September 30, 2019, Exelon failed to submit an LER within 60 days after the discovery of an unanalyzed condition that significantly degraded plant safety. Specifically, Exelon identified postulated fire-induced circuit failures involving unfused non-safety related DC motor control circuits could affect safe shutdown equipment which was an unanalyzed condition that significantly degraded plant safety. This event occurred on June 23, 2019. Although Exelon submitted an LER on August 23, 2019, the licensee retracted it on September 30, 2019 and did not re-submit it until April 14, 2020, which exceeded the 60 day requirement. Exelon entered this issue into their corrective action program in issue report 4295495 and 4319657.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

## EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 23, 2020, the inspectors presented the Problem Identification and Resolution Annual Sample Inspection results to Mr. Pat Navin, Site Vice President, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

| Inspection Procedure | Type | Designation | Description or Title | Revision or Date |
|---|---|---|---|---|
| 71152 | Corrective Action Documents | 4259118 | | |
| | | 4319657 | | |
| | Corrective Action Documents Resulting from Inspection | 4295495 | | |
| | Drawings | FE-1AH | 125V DC One Line Diagram | 34 |
| | Engineering Evaluations | JAF | Hot Short White Paper | 09/19/2019 |
| | | JAF-RPT-04-00478 | JAF Fire Hazards Analysis | 3 |
| | | JAF-RPT-FPS-01975 | 10CFR50 Appendix R Safe Shutdown Analysis Report (SSAR) | 5 |
| | | JF-PRA-021.11 | James A. Fitzpatrick Nuclear Power Plant Summary and Quantification Notebook | 0 |
| | | JF-SDP-001 | Results for Significance Determination Process (SDP) Evaluation for DC Unfused Circuits | 0 |
| | | KCI Report | Fault Current Impact of #12 A WG Control Cable | 09/19/2019 |
| | Procedures | EOP-2 | RPV Control | 11 |
| | | EP-11 | Alternate Depressurization using SRVs from 02ADS-71 | 1 |
| 71153 | Corrective Action Documents | 4259118 | | |
| | | 4319657 | | |
| | Corrective Action Documents Resulting from Inspection | 4295495 | | |